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GUY P. JONES  
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## *A Summary of the Present Status of Coccidioidal Infection*

(Continued from last issue)

Where the fungus multiplies in nature is still unknown. There is abundant evidence indicating that the fungus is blown about in dust and it has been recovered from the soil of two regions (Delano, Kern County and Panoche Valley, San Benito County). However, only infrequent specimens of San Joaquin Valley dust contain the spores, as many fruitless and rarely successful attempts to recover the fungus indicate. This fact is important in connection with occupational aspects of coccidioidal infection.

The two criteria for absolute proof of coccidioidal infection are unchanged from those stated in Bulletin 57. The more desirable is the actual recovery of the fungus by culture and/or animal inoculation. If a suspicious white fungus is recovered on culture, it should be injected into a guinea pig or mouse to establish the diagnostic spherule stage. If spherules are recovered from an animal inoculated with a specimen, the mycelial form should be cultured from these spherules. Direct coverslip examination is not satisfactory. The most experienced workers have erred in calling structures *Coccidioides* when they were not and in failing to detect the fungus when subsequent cultures show them in abundance. These errors are the explanation why the Bureau of Laboratories of the California State Department of Public Health requires that a culture be sent that Bureau when coccidioidal granuloma is reported. The second criterion of absolute diagnosis is demonstration of endosporulating spherules in tissue sections. One should emphasize the necessity of observing presence of endospores and absence of budding.

Other diagnostic aids may be mentioned briefly. First is the coccidioidin skin test. Coccidioidin is prepared in much the same way as tuberculin. The test is performed, read and interpreted as is the Mantoux test. One should recall that granuloma patients are much less sensitive than erythema nodosum patients. Terminally, granuloma patients may be anergic. Care must be taken that the syringes and diluting equipment have not been contaminated with other biological materials, especially tuberculin which remains even after autoclaving. A positive test merely indicates past or present infection. Of course a negative test followed by a positive one during an actual illness would be diagnostic. A rapid sedimentation rate is seen when coccidioidal infection is active. Occasionally patients with coccidioidal granuloma have eosinophilia; frequently eosinophilia and an increase in immature polymorphonuclear leukocytes are observed. Chest X-rays in primary coccidioidomycosis often appear normal, but may show enlarged hilar shadows and parenchymal densities indistinguishable from those of primary tuberculosis or bronchopneumonia. Occasionally they have been diagnosed lung abscess or even metastatic carcinoma. The X-ray appearance of military coccidioidal granuloma is identical with that of military tuberculosis. An individual coccidioidal granuloma bone lesion has an X-ray appearance similar to tuberculosis. Differential points as pointed out by Carter include the predilection for cancellous bone and especially the ankle, the multiple lesions and usually more bone proliferation. A recent revival and extension of serological tests is promising. It is dependable in detecting victims of disseminated coccidioidal granu-



loma, although those rare survivors also give strongly positive complement fixation tests. There are some limitations, however, and patients with solitary cavities may have negative serology. The test has also been useful in diagnosing primary infection and may have prognostic value.

As we have seen, the prognosis of primary coccidioidomycosis is very good. Rarely indeed do patients with erythema nodosum develop granuloma, which is generally meningeal. However, there must be a thousand or more "San Joaquin Fever" patients who get well without complication for every meningitis victim. Frequently these patients with primary coccidioidomycosis are frightened horribly by the prospect of coccidioidal granuloma. One should point out that the real danger has passed when the primary infection has been handled successfully, that the infection apparently protects them against a second attack. Persons with actual erythema nodosum should be given the additional reassurance that they are the least likely to develop granuloma.

Of course the prognosis of granuloma is poor, but some patients live for years and ultimately recover completely.

The treatment of primary coccidioidomycosis is symptomatic, with salicylates especially helpful. There is no specific. Rest, certainly while there is evidence of activity of the infective process, is indicated. The treatment of granuloma continues to be unsatisfactory. Thymol, iodides, and of course the sulfonamides, as well as a host of other drugs have been tried without success. Vaccines have sometimes helped, but not consistently. One should treat as for tuberculosis with rest, high vitamin and caloric diet. Occasionally surgery has been successful. Pneumothorax may succeed in closing some solitary pulmonary cavities and should be attempted if hemoptysis occurs. No vaccine could be expected to close such a mechanical defect and would not be indicated in these cases. A specific for coccidioidal granuloma would probably be the same as the cure for tuberculosis.

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#### HOW TO GET THE MOST OUT OF FOODS

*Don't use soda in cooking green vegetables* because it completely destroys certain vitamins which occur most abundantly in this type of food.

*Use as little water as possible* when boiling vegetables because many vitamins are soluble in water, which means they are lost down the drainpipe if vegetables are cooked in a great deal of water. Save vitamins by using waterless or steam-pressure methods when possible, by cooking with little water, and by utilizing water in which vegetables have been cooked for gravies and soups.

*Cook them quickly.* Long, slow cooking takes a heavy toll in flavor, color and vitamins. Green vegetables will retain good color without soda if they are put into rapidly boiling water and cooked in an open kettle without stirring, provided they are not overcooked or left standing too long. (High temperature combines with oxygen in the air to kill vitamins.)

*Raise temperatures fast* when boiling foods, to reduce cooking time and give vitamins less chance to soak out.

*Start cooking frosted foods* while they are still frozen because exposure to air affects some of the vitamins.

*Serve raw frozen foods immediately* after thawing to prevent oxidation.

*Don't stir air into foods while cooking* because high temperatures, plus oxygen, destroy certain vitamins.

*Don't put vegetables through a sieve while hot* for the same reason as above.

*Serve them fresh.* Even exposure to air destroys some vitamins, such as the valuable C, which is plentiful in fresh orange juice but begins to oxidize within the first half hour. Squeeze such juice to order. To preserve the vitamin value, prepare fresh fruits and vegetables just before serving. Much can be



done to develop interesting salad combinations which permit the use of a greater variety of fresh uncooked vegetables. Examples which might be palatably and profitably combined in mixed green vegetable salads are: shredded carrots, shredded red cabbage, shredded beets, cauliflower flowerets, chopped tender beet greens, shredded escarole leaves, watercress, etc.

*Don't fry foods containing vitamins A, B-1, or C* (eggs, liver, chicken, lean pork, brown rice, nuts, tomatoes are examples) because Vitamin A is dissolved by fats and the other two are easily destroyed by direct heat. Oven-baking, roasting or broiling eliminates this loss. Eggs boiled, poached, shirred, baked, in omelets or souffles are preferable to fried, vitaminally-speaking.

*Keep them cool.* Store foods at low temperatures, to preserve vitamin freshness.

*Keep them covered.* Exposure to air causes fruits and vegetables to dry out more quickly. Vitamins are destroyed by oxidation.

*Keep them circulating.* Although canned foods retain their vitamin values well, they should not be stored too long. Keep your stocks circulating. Use up the oldest first. Don't buy too much at one time. Use entire contents of a can as soon as possible after it has been opened.

*Don't let them stand.* Don't peel and cut up vegetables and fruits a long time before cooking. Cutting them up hastens oxidation. Letting them stand in water causes loss of vitamins.

*Cooking them whole* or with the outer covering on helps to preserve the vitamin content.

*Work in a variety.* Many foods which are good sources for vitamins could be used more often than they are in daily menus. Make a place particularly for lean meats, whole grain cereals and breads, milk, eggs, fresh fruits and vegetables—especially the green leafy ones.

*Serve them promptly.* Don't let foods stand long after they are cooked, if you want to get full benefit from the vitamins. This is an excellent reason for cooking several small batches instead of one large quantity.

*Vitamins in canned or frozen foods.* Improved modern technique enables packers to retain full vitamin values in many vegetables which are now grown "on location," picked at the peak of perfect tenderness or ripeness, and put up at the height of their freshness, by scientifically correct methods,

under sanitary conditions. For these reasons, canned and frozen foods often excel those raw foods which are grown in poor soil or climate, impoverished in vitamin-content by poor transportation and slow marketing, devitalized by poor storage and wrong cookery. Many fresh vegetables have lost half of their nutritive value while on their way to your kitchen—in a matter of only a few days.—From "What You Should Know About Food Values and Their Protection" in May issue of "Hotel Management."

### INDUSTRIAL HYGIENE SERVICES

Special investigations were made during July, into problems related to silica dust studies in sandstone mines, hydrogen cyanide gas from plating tanks, carbon monoxide tests in garages, smoke from metal reclaiming furnaces, and mercury poisoning in hat manufacturing.

Epidemiological studies were made in four ship building yards; a nonferrous metals reclamation plant; a marine engine factory, a detonator manufacturing plant; a fish canning and packing plant, a paint, lacquer, and enamel factory; a lithographing plant; and a precious metals refinery. The illnesses investigated included lead poisoning; chlorine poisoning; conjunctivitis among welders; metal fume fever due to the inhalation of zinc oxide fumes while welding and burning galvanized metals in the holds of ships; suspected pneumoconiosis due to inhalation of dust from grinding wheels; bronchitis due to alkali fumes; dermatoses due to sulfur, fulminate of mercury, and rubber solvents. In each case in which the reported illness was found to be of occupational origin, employers and employees were advised as to practical measures for the prevention of further cases from the same source.

### DR. WALLACE EUREKA HEALTH OFFICER

Dr. Carl T. Wallace has succeeded Dr. John N. Chain as City Health Officer of Eureka. Dr. Wallace is no stranger to public health in Humboldt County, having served many terms as city or county health officer.

### YOLO HAS NEW HEALTH OFFICER

Dr. David Frost has been appointed health officer of Yolo County to succeed Dr. John G. O'Hara, who has entered military service. Dr. Frost assumed office August 8th. His headquarters are at Woodland.



## MORBIDITY

Complete Reports for Following Diseases for Week ending  
August 9, 1941

## Chickenpox

101 cases: Alameda 1, Berkeley 8, Oakland 5, Fresno 1, Los Angeles County 8, Huntington Park 1, Los Angeles 19, Monrovia 1, Pasadena 1, Pomona 5, Santa Monica 1, Torrance 1, Madera County 10, Sacramento 1, San Diego County 3, National City 1, San Diego 15, San Francisco 6, San Joaquin County 2, Paso Robles 1, Santa Barbara 1, San Jose 4, Shasta County 1, Ventura County 1, Oxnard 1, Ventura 1, Yuba County 1.

## Diphtheria

4 cases: Los Angeles 3, National City 1.

## German Measles

80 cases: Berkeley 3, Oakland 2, Kern County 1, Los Angeles County 6, Culver City 1, Los Angeles 11, Pasadena 1, Santa Monica 1, South Gate 5, Madera 2, Yosemite National Park 1, Mendocino County 5, Monterey County 1, Fullerton 1, Santa Ana 1, Sacramento 3, Coronado 1, National City 1, San Diego 3, San Francisco 8, San Joaquin County 1, Manteca 1, Stockton 2, Tracy 2, Santa Barbara County 2, Santa Maria 1, San Jose 1, Sonoma County 2, Santa Rosa 1, Yuba County 1.

## Influenza

32 cases: Berkeley 1, Butte County 1, Los Angeles County 5, Los Angeles 2, Whittier 1, South Gate 1.

## Malaria

4 cases: Contra Costa County 1, Redlands 1, Tulare County 1, California 1.\*

## Measles

130 Cases: Berkeley 1, Hayward 1, Oakland 4, Butte County 1, Fresno 1, Kern County 2, Los Angeles County 19, Avalon 1, Burbank 1, Huntington Park 1, Los Angeles 11, Whittier 2, Lynwood 3, South Gate 6, Monterey Park 1, Maywood 1, Calistoga 1, Napa 5, Santa Ana 3, Beaumont 1, Riverside 1, San Diego 9, Tracy 4, San Luis Obispo County 1, Paso Robles 1, San Luis Obispo 1, San Mateo 1, Santa Clara County 2, Yreka 4, Sonoma County 14, Salinas 1, Ventura County 8, Oxnard 4.

## Mumps

231 cases: Alameda 1, Berkeley 1, Hayward 1, Oakland 5, Fresno 1, Humboldt County 1, Kern County 1, Los Angeles County 15, Alhambra 1, Burbank 1, El Monte 1, Glendale 2, Huntington Park 2, Los Angeles 31, Montebello 1, Pomona 1, Redondo 1, San Fernando 1, San Marino 1, Santa Monica 3, Whittier 3, Maywood 2, Madera County 3, Mendocino County 1, Monterey County 1, King City 1, Monterey 2, Salinas 1, Orange County 7, Fullerton 1, Newport Beach 2, Orange 3, Santa Ana 4, Tustin 2, Corona 1, Sacramento 4, San Bernardino 1, San Diego County 4, National City 2, San Diego 53, San Francisco 17, Lodi 4, San Mateo County 2, Burlingame 3, Santa Barbara County 4, Lompoc 2, Santa Barbara 1, Santa Maria 1, Santa Clara County 4, San Jose 1, Siskiyou County 1, Sonoma County 1, Santa Rosa 3, Oxnard 6, Santa Paula 1, Ventura 1, Woodland 2.

## Pneumonia (Lobar)

46 cases: Berkeley 1, Oakland 2, Los Angeles County 9, Arcadia 1, Burbank 1, Huntington Park 1, Long Beach 1, Los Angeles 12, Pasadena 1, Lynwood 1, San Bernardino 1, Oceanside 1, San Francisco 1, San Luis Obispo 1, Ventura County 1.

## Scarlet Fever

40 cases: Berkeley 1, Los Angeles County 11, Long Beach 1, Los Angeles 6, Redondo 1, Maywood 1, Bell 1, Madera County 2, Orange County 1, San Diego 2, San Francisco 2, San Joaquin County 1, Burlingame 1, Santa Rosa 1, Dinuba 1, Ventura County 4, Fillmore 1, California 1.\*

## Smallpox

No cases reported.

## Typhoid Fever

4 cases: Alameda County 1, Fresno County 1, San Francisco 1, Suisun 1.

## Whooping Cough

371 cases: Alameda County 10, Alameda 5, Berkeley 3, Hayward 1, Oakland 12, San Leandro 6, Butte County 1, Fresno County 6, Kern County 2, Los Angeles County 35, Compton 1, Culver City 1, Glendale 3, Huntington Park 5, Long Beach 4, Los Angeles 59, Monrovia 1, Pasadena 10, Pomona 15, San Gabriel 1, Sierra Madre 2, South Pasadena 1, Whittier 2, South Gate 6, Bell 1, Monterey County 12, Monterey 1, Pacific Grove 1, Salinas 1, Anaheim 1, Brea 2, Sacramento 11, San Bernardino 3, San Diego County 2, El Cajon 3, National City 1, San Diego 61, San Francisco 10, San Joaquin County 11, Stockton 5, San

Luis Obispo 3, San Bruno 2, Santa Barbara County 2, Lompoc 2, Santa Barbara 8, San Jose 2, Santa Cruz County 1, Santa Cruz 1, Watsonville 1, Shasta County 2, Yreka 2, Petaluma 1, Sutter County 7, Ventura County 6, Fillmore 1, Oxnard 2, Ventura 2, Davis 1, Yuba County 6, Marysville 1.

## Dysentery (Amoebic)

5 cases: Kern County 2, Los Angeles 1, California 2.\*

## Dysentery (Bacillary)

7 cases: Los Angeles 4, King City 1.

## Poliomyelitis

7 cases: Kern County 3, Los Angeles County 1, Los Angeles 2, Sutter County 1.

## Tetanus

4 cases: Los Angeles 2, Colfax 1, Mountain View 1.

## Trachoma

4 cases: Oakland 1, Fresno 3.

## Encephalitis (Epidemic)

9 cases: Albany 1, Fresno 1, Kern County 4, Shasta County 1, Tulare County 1, Porterville 1.

## Jaundice (Epidemic)

6 cases: Los Angeles County.

## Food Poisoning

12 cases: San Diego County 8, National City 4.

## Undulant Fever

4 cases: Burbank 1, San Gabriel 1, San Diego County 1, South San Francisco 1.

## Coccidioid Granuloma

2 cases: San Francisco 1, Santa Paula 1.

## Relapsing Fever

1 case: San Bernardino County.

## Epilepsy

42 cases: Selma 1, Los Angeles County 2, Inglewood 1, Los Angeles 25, San Bernardino County 1, San Francisco 2, Sonoma County 10.

## Rabies (Animal)

3 cases: Los Angeles County 1, Los Angeles 2.

\* Cases charged to "California" represent patients ill before entering the State or those who contracted their illness traveling about the State throughout the incubation period of the disease. These cases are not chargeable to any one locality.

Belie in yourself the weaknesses of your country. Water partakes of the qualities, good or bad, of the seams through which it flows; and man of the climate into which he is born. Some owe more to their country than others because a happier zenith lay above them. There is no nation, even of the most cultured, without some inborn defect which its neighbors will not at once strike upon, either for their caution, or their comfort. A commendable skill to eradicate such national weaknesses in yourself, or at least, to hide them; thus are you made unique among your kind, for what is least expected is esteemed most highly. There are weaknesses also of race, of rank, of profession, and of age, which, if gathered together in one individual, and not curbed, yield an intolerable monster.

—Baltazar Gracian, 1653.

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